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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, SIMON

ART UNIT PAPER NUMBER

2685

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/072,299	Applicant(s) SCHERZER, SHIMON B.	
	Examiner SIMON D. NGUYEN	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 and 18-22 is/are allowed.
- 6) ☒ Claim(s) 11, 16, 17 and 23 is/are rejected.
- 7) ☒ Claim(s) 12-15 and 24-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al. (6,452,981) in view of Walton et al. (2002/0154705).

Regarding claim 11, Raleigh discloses a method for operating a wireless communication system (abstract, figs.11, 13, 15, 17, 19-21), comprising: generating concurrent forward-link transmit signals for a plurality of channels (column 26 line 53 to column 27 line 7); determining a current forward-link power for each of the plurality of channels (column 24 lines 14-55, column 25 lines 41-61); and assigning the plurality of channels to a plurality of antennas for transmission of the signals (column 27 lines 14-18). However, Raleigh does not specifically disclose selecting the antenna that minimizes forward-link transmit power and concurrently transmitted channels.

Walton, in a spatial diversity system, discloses the transmission power on a base station is achieved at a minimal transmit power if the path loss from the antenna is great, transmission from this antenna is reduced or muted (paragraphs 236-138) and channels are concurrently transmitted (paragraphs 35, 119). Therefore, it would have

been obvious to one skilled in the art at the time the invention was made to have Raleigh, modified by Walton in order to optimize the power performance.

Regarding claim 23, this claim is rejected for the same reason as set forth in claim 11, wherein Raleigh further discloses measuring a channel quality metric associated with a respective reverse link for each of channels (column 6 lines 3-5, column 9 line 42, column 30 lines 10-19, column 34 lines 50-53).

3. Claims 11, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al. (6,452,981) in view of Hiramatsu et al. (6,442,405).

Regarding claim 11, Raleigh discloses a method for operating a wireless communication system (abstract, figs. 11, 13, 15, 17, 19-21), comprising: generating concurrent forward-link transmit signals for a plurality of channels (column 26 line 53 to column 27 line 7); determining a current forward-link power for each of the plurality of channels (column 24 lines 14-55, column 25 lines 41-61); and assigning the plurality of channels to a plurality of antennas for transmission of the signals (column 27 lines 14-18). However, Raleigh does not specifically disclose selecting the antenna that minimizes forward-link transmit power and concurrently transmitted channels.

Hiramatsu, in a spatial diversity system, discloses the transmission power on a base station is achieved at a minimal transmit power (abstract, column 16 lines 7-13). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Raleigh, modified by Hiramatsu in order to increase the subscriber capacity.

Regarding claim 23, this claim is rejected for the same reason as set forth in claim 11, wherein Raleigh further discloses measuring a channel quality metric associated with a respective reverse link for each of channels (column 6 lines 3-5, column 9 line 42, column 30 lines 10-19, column 34 lines 50-53).

4. Claims 11, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al. (6,452,981) in view of Newson et al. (6,320,898).

Regarding claim 11, Raleigh discloses a method for operating a wireless communication system (abstract, figs.11, 13, 15, 17, 19-21), comprising: generating concurrent forward-link transmit signals for a plurality of channels (column 26 line 53 to column 27 line 7); determining a current forward-link power for each of the plurality of channels (column 24 lines 14-55, column 25 lines 41-61); and assigning the plurality of channels to a plurality of antennas for transmission of the signals (column 27 lines 14-18). However, Raleigh does not specifically disclose selecting the antenna that minimizes forward-link transmit power and concurrently transmitted channels.

Newson, in a spatial diversity system, discloses the transmission power on a base station is achieved at a minimal transmit power (abstract, column 4 lines 32-37). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Raleigh, modified by Newson in order to increase the subscriber capacity.

Regarding claim 23, this claim is rejected for the same reason as set forth in claim 11, wherein Raleigh further discloses measuring a channel quality metric

Art Unit: 2685

associated with a respective reverse link for each of channels (column 6 lines 3-5, column 9 line 42, column 30 lines 10-19, column 34 lines 50-53).

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al. (6,452,981) in view of Walton et al. (2002/0154705), and further in view of Yeom et al. (6,529,496).

Regarding claim 16, Raleigh further discloses the step of determining (calculating) power for assignment (column 22 lines 5-28, column 24 lines 14-55, column 25 lines 41-61, column 26 lines 14-29). However, the modified Raleigh does not specifically disclose calculating forwarding power based on assignments of channels and antennas.

Yeom discloses calculating the transmission power based on assignments of channels and antennas (column 2 line 44 to column 3 line 10). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have the modified Raleigh, modified by Yeom in order to improve the power assignment for each antenna.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al. (6,452,981) in view of Walton et al. (2002/0154705), and further in view of Anvekar et al. (6,594,475).

Regarding claim 17, the modified Raleigh fails to disclose switching reverse-link.

Anvekar discloses a base station having a switch for switching reverse-link signal for a plurality of antenna associated with best channel quality (fig.1, column 3 line 52 to column 5 line 7). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have the modified Raleigh, modified by Anvekar to assign the channel to the best antenna in order to reduce fading signals.

Allowable Subject Matter

7. Claims 1-10, 18-22 are allowed.

Regarding claim 1, the prior art of record does not specifically disclose controlling switch matrix such that a limited number of antenna interfaces are coupled to a same antenna.

Regarding claim 18, the prior art of record does not specifically disclose controlling switching means to switch a forward-link signal associated with a highest transmit power to an antenna means that is associated with a highest channel quality metric for the reverse-link signal that corresponds to the forward-link signal in a first mode of operation.

Regarding claims 2-10, 18-22, these claims are allowed as being dependent upon independent claims that have been allowed.

8. Claims 12-15, 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 12 and 24, the prior art of record fails to teach assigning the plurality of channels to the plurality of antenna for transmission of the concurrent forward-link signals in a second mode of operation when fading rate of Raleigh fading of the plurality of channels is sufficiently low and frequency hopping averaging does not allow for shadowing fading estimation are true.

Regarding claims 15, 27, the prior art of record does not specifically disclose calculating power matrix $P_{i,k}$ being equal to $V_k (C/I)_{k,k} / (C/I)_{i,k}$, wherein V_k is a respective forward-link power associated with a k th channel, $(C/I)_{k,k}$ is a respective carrier-to-interference C/I ratio for the k th channel as received on an antenna that is currently being using the k th channel, and $(C/I)_{i,k}$ is the respective C/I ratio associated with the k th channel as received by the i th antenna.

Regarding claims 13-14, 25-26, these claims are objected for the same reason as set forth in claims 12 and 24.

Response to Arguments

Applicant's arguments filed 8/30/05 have been fully considered but they are not persuasive. In Remarks, the applicant stated that Walton has failed to disclose the antennas are selected to minimize forward-link transmit power.

Reviewing the prior art of Walton, the examiner disagrees for the following reasons: Walton teaches that "...the transmit power on the forward...links can be controlled to minimize interference and maximize system capacity... if the path loss from a particular antenna is great, transmission from this antenna can be reduced or

muted since little may be gained at the receiver unit.” (paragraph 0137). From the above paragraph, Walton implies that the system reduces or eliminates any particular antenna having a high interference, great path loss, and select the antenna with minimizing interference. Since the high interference antenna, if keep using, will consumes more power to suppress the noise or interference, it will drains the power supply of the system, therefore, by shutting it down or reducing use it, the system has more power to add more subscribers or maximize the system capacity. Therefore, Walton teaches that by selecting the antenna for transmitting, minimizes total transmission power.

Furthermore, the new cited arts of Hiramatsu and Newson, wherein Hiramatsu teaches the base station performing transmit power control based on assignment of antennas to minimize transmit power, to decrease interference, thereby, increasing the subscriber capacity (see rejection above); and Newson also teaches a base station selecting the antenna for optimize the transmission, and minimizes power usage (abstract, column 4 lines 32-36).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Simon Nguyen whose telephone number is (571) 272-7894. The examiner can normally be reached on Monday-Friday from 7:00 AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban, can be reached on (571) 272-7899.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

600 Dulany, Alexandria, VA 22314

Or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Hand-delivered response should be brought to Knox building,
501 Dulany, Alexandria, VA.

**SIMON NGUYEN
PRIMARY EXAMINER**

Simon Nguyen
November 23, 2005